

METHOD FOR CODE DIVISION MULTIPLE  
ACCESS COMMUNICATION WITH INCREASED CAPACITY  
THROUGH SELF-NOISE REDUCTION

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ABSTRACT

A method for constructing orthogonal codes of length N for use in a network utilizing quasi-synchronous code division multiple access combined with time division duplexing. The method determines the balanced vectors of length N, being all possible cross-correlation vectors resulting from zero cross-correlation of codes of length N. An arbitrary code of length N is utilized, and a bitwise XOR-ing is performed with all the balanced vectors to produce a set of codes with which the arbitrary code is orthogonal. A bitwise XOR-ing of the original balanced vectors is performed and the code is added to a set of orthogonal codes if the result of the bitwise XOR-ing of the original balanced vectors is balanced. The method is repeated until the set of orthogonal codes is complete.

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